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# Greetings from UOA University Orthopaedic Associates A DIVISION OF OrthoNJ



Darleen Caccavale, CEO

Cheers to a New Year and the release of our fifth edition of the UOA "Life in Motion" magazine. Featuring articles from our highly skilled, nationally recognized and passionate orthopaedic surgeons, we hope this information is a useful resource. As New Jersey's leading orthopaedic practice, we have been treating families for their musculoskeletal needs for more than 50 years. Dedicated to providing the most current, highest quality, personalized healthcare services available, it is a privilege to offer information that can help you understand a variety of common orthopaedic ailments and to share some of the cutting edge procedures that are pioneered and utilized by our physicians and staff.

Since inception in 1972, we continue to grow with increased providers and locations; our commitment to the pursuit of excellence in orthopaedic treatment, medical education and training, clinical and bench research and the promotion of community health has un-waivered. Each of our physicians is fellowship trained and board certified or board eligible, and each strives to provide the highest level of patient care based on the best available medical evidence. Providing care for adolescent through adult ages, our physicians have subspecialty training in sports medicine, upper extremity, spine, joint replacement, foot and ankle, trauma and physical medicine and rehabilitation. Our patients experience the latest technology and concepts available coupled with compassionate care. With in-house MRI, digital X-ray, musculoskeletal ultrasound, DXA scan, on-site surgi center, physical and hand therapy and our Sports Performance and Wellness programs, our patients experience a continuum of care that is second-to-none in the state of New Jersey.

With academic appointment in the Department of Orthopaedic Surgery at Rutgers, Robert Wood Johnson Medical School, our physicians train future orthopaedic surgeons. This educational experience is a two-way street with residents gaining vital experience through teaching and physician mentoring and our physicians benefit, as they must stay cutting edge with the newest orthopaedic procedures and current research. Ultimately, the patient is the benefactor of this educational component. From the clinical setting to the sidelines, you will find our physicians at local high schools and collegiate sporting events as we provide care to athletes from Rutgers, Princeton and Rider Universities as well as US Ski and Snowboard Olympic teams, US Rowing, Somerset Patriots baseball, as well as participate in many community events.

UOA is continually involved with new research and with educational programming for physicians, therapists, athletic trainers and the community. To learn more about our current research or upcoming educational opportunities, please visit our website at www.uoanj.com. The site offers an array of information that includes general office information, detailed information about physician training, educational resources to understand your medical condition, the latest UOA news, announcements, and an interactive patient portal to update or request information. UOA is also active with social media, including Facebook, Instagram, X, YouTube and UStream TV.

Our desire to continue to provide quality, patient centered orthopaedic care is shared by our OrthoNJ partners throughout the state. OrthoNJ is New Jersey's largest independent orthopaedic group. Our consolidation has enabled our physicians to remain true to the patient driven vision of top-notch orthopaedic care and not corporate medicine.

The physicians and staff at UOA would like to thank the generous sponsors for their support of this publication. We would also like to thank our patients, referring physicians, therapists and athletic trainers for the opportunity that you have given us to serve you and we look forward to exceeding your orthopaedic needs every day.

- Darleen Caccavale, CEO

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## Do You Suffer With Chronic Pain?

# Our highly-skilled PMR physicians may have a solution to help you manage your chronic pain including the use of a neurostimulator.

Neuromodulation for pain is an advanced therapeutic approach that involves the use of implantable devices to deliver electrical or chemical stimuli to specific areas of the nervous system, with the goal of altering pain signals before they reach the brain. This technique is particularly beneficial for patients with chronic pain conditions that are refractory to conventional treatments, such as medications or physical therapy. By specifically targeting areas like the spinal cord, dorsal root ganglion, or peripheral nerves, neuromodulation can provide significant pain relief with fewer systemic side effects, enhancing the quality of life for patients. The most common forms of neuromodulation for pain include spinal cord stimulation (SCS) and dorsal root ganglion (DRG) stimulation, each offering unique benefits depending on the nature and location of the pain, thus allowing for more personalized and effective pain management strategies.

When comparing the dorsal root ganglion (DRG) stimulator to the dorsal column stimulator (DCS), also known as a spinal cord stimulator (SCS), it's important to understand the distinctions in their design, function, and effectiveness, particularly in managing focal neuropathic pain.

### **Overview of Both Stimulators**

### Dorsal Root Ganglion (DRG) Stimulator

- Target Area: The DRG stimulator is a new type of stimulator that targets the dorsal root ganglion, a cluster of nerve cells that are pivotal in transmitting sensory information, including pain, to the central nervous system.
   It is a new type of therapy that is designed to manage difficult-to-treat chronic pain in specific areas of the lower body like the foot, knee, hip or groin.
- Mechanism: By delivering electrical pulses directly to the DRG, the device can modulate pain signals with precision. DRG act like traffic lights which regulate signals and sensations which travel through the nerve fibers along the spine column to the brain.
- Pain Focus: Particularly effective in treating focal neuropathic pain conditions, such as complex regional pain syndrome (CRPS) and certain types of peripheral neuropathies.
- Generator: A small device that sends out mild electrical pulses and that contains a battery. This is implanted in your body.
- Leads: Thin insulated wires that carry the electrical pulses from the generator to your dorsal root ganglia. These are placed in your body in the area of the DRG.
- Patient controller: A handheld "remote control" that

allows you to adjust the strength and location of stimulation or even turn stimulation off.

### Dorsal Column (Spinal Cord) Stimulator (DCS/SCS)

- Target Area: The DCS targets the dorsal columns of the spinal cord, which are broader pathways that carry sensory information to the brain.
- **Mechanism:** This device delivers electrical impulses to the spinal cord to disrupt pain signal transmission.
- Pain Focus: Traditionally used for broader pain conditions, such as failed back surgery syndrome or widespread neuropathic pain.

### **Comparative Advantages**

### Precision and Focal Pain Management

- DRG Stimulator:
  - Precision: The DRG stimulator offers superior targeting capabilities for focal neuropathic pain due to its ability to act directly on the nerve cells associated with specific pain regions.
  - Focal Pain Relief: This makes it particularly effective for conditions where pain is localized to a specific area, providing more tailored and effective pain relief.

### · DCS/SCS:

 Broader Coverage: While effective for diffuse pain conditions, the DCS is less precise in targeting specific pain areas compared to the DRG stimulator. It is better suited for conditions where pain is more generalized or widespread.

### **Clinical Outcomes**

- DRG Stimulator: Clinical studies have shown that DRG stimulation can provide significant pain relief with a higher degree of specificity and fewer side effects related to unwanted stimulation of non-painful areas.
- DCS/SCS: While effective, patients may experience paresthesia or stimulation of non-painful areas, which can be a limitation for treating highly localized pain.

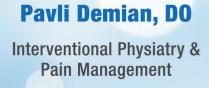
In summary, while both DRG and DCS can be effective for managing chronic pain, the DRG stimulator offers superior capabilities for targeting and treating focal neuropathic pain, making it an excellent option for patients with highly localized pain issues.

If you suffer with chronic pain, consider making an appointment with one of our PMR physicians to discuss your specific pain to determine the most appropriate treatment option.



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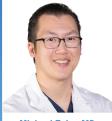
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## Radiologic Imaging of Joint Replacements

BY DR. KEVIN CHU

Osteoarthritis is a common degenerative joint disease in which the protective cartilage that lines and cushions the joints breaks down over time and the bones rub against each other. It is a debilitating condition that can cause pain, tenderness, swelling and stiffness, and can impede mobility and flexibility. Oftentimes the symptoms fail to respond to conservative treatments such as medication or physical therapy. Each year, approximately two million Americans undergo hip, knee or shoulder replacement surgery to improve their quality of life.

Advancements in medical imaging have allowed orthopedic surgeons to pre-operatively assess their patients' limb anatomy to optimize metal implant fit and function. Figure 1 depicts a pre-operative 3D CAT scan rendering of the left shoulder with degenerative osteoarthritis. By visualizing their patients' anatomy in 3D, orthopedic surgeons can customize a more precise surgical outcome. Thousands of patients are scanned annually at Princeton Radiology offices utilizing these pre-operative protocols.



Figure 1

Orthopedic device vendors offer a variety of implant models which can contain metal and ceramic components. Figure 2 is an example hip joint replacement system with a metal acetabular cup, polyethylene liner, and metal femoral head and stem.



Figure 2

Post-operatively, orthopedic surgeons may request imaging studies to evaluate implant integrity. X-rays are the preferred modality to detect acute fractures or dislocations. However, MRI's can be ordered if there is concern for subtle hardware loosening, soft tissue reaction or infection. Due to the presence of metal, traditional MRI sequences will demonstrate "blooming" artifact around the hardware which degrades image quality and diagnostic accuracy. Princeton Radiology offers the latest equipment and advances including MRI metal artifact reduction techniques (MARS) which reduces the blooming artifact, thereby dramatically increasing the ability to detect complications. Figure 3 shows a left knee MRI without MARS and Figure 4 shows a left knee MRI with MARS.

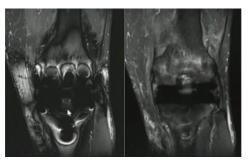


Figure 3

Figure 4

With these high quality images, University Orthopaedic Associates surgeons and Princeton Radiology sub-specialized radiologists work in tandem to confidently diagnose and manage patients with joint replacements.



BY CRIS BEIRO, MD



# Knee Arthritis: Surgical Management

Arthritis is a common joint disease involving pain, stiffness, swelling and inflammation resulting from a breakdown of the cartilage lining in the joint. Osteoarthritis (OA), the most common type of arthritis, is regarded as a "wear and tear" condition and can only progress with currently no existing cure to replace the cartilage lining. Additionally, there are over 100 types of arthritis caused by systemic conditions such as gout, rheumatoid arthritis, psoriatic arthritis, lupus, etc.

Knee osteoarthritis is the most common form of OA, affecting over 26.9 million Americans yearly. It is estimated that 15% of individuals over 45 years old suffer from knee OA, with that number increasing to 33.6% for those older than 65 years. It is also a major global burden to public health, resulting in an estimated cost of \$27 billion dollars annually. Knee arthritis can be extremely debilitating and cause severe pain, swelling, deformity, instability, and adjacent muscle weakness. It can severely impact our ability to walk and perform daily activities and exercises.

The etiology of osteoarthritis is complex and multifactorial, and includes such factors as age, weight, familial history, job type, previous trauma, sports and exercise regimens. Eventually, the cartilage may deteriorate down to the bones which then start rubbing on each other ("bone-on-bone") (fig.1). This is known as severe or end-stage osteoarthritis. When this happens in the knee, large bone spurs can develop and the alignment of the knee and leg may change from straight to bowed in or outward (fig.2). On imaging, knee arthritis is diagnosed with x-rays; a MRI may sometimes be helpful to characterize the extent of arthritic change if not already evident.

Conservative treatment options revolve around rest, activity modification, weight loss, anti-inflammatory medication, physical therapy and injections. Given its progressive nature,





Fig.1 - Left, comparison Xray of knee with no arthritis; Right, Xray of knee with advanced arthritis, worse in the medial compartment





Fig 2. Left, Valgus knee (knock-knee); Right, Varus knee (Bow-legged)

the arthritic knee may stop responding to these treatments over time. Also, knee arthritis may be further complicated by degenerative meniscus tears, which can be seen in up to 90% of people with arthritis and can exacerbate arthritic symptoms.

What happens when these conservative treatment options no longer provide relief? In these cases, surgical options are usually discussed. The indications for each procedure vary, but the common thread is that surgery is recommended when nothing else works. However, surgery can instill anxiety in patients because of the unknowns surrounding these procedures and the recovery associated with it. The purpose of this article is to briefly explain some of the surgical options used to treat knee arthritis.

### **Arthroscopy**

This procedure is minimally invasive, and usually involves two small 1 cm incisions (portals) at the front of the knee. A camera is placed in one portal to visualize the joint and small instruments are placed through the other. A debridement ("clean-up") can be performed to remove any inflammatory tissue, fluid cysts, meniscus tears, damaged cartilage flaps, loose pieces of bone or cartilage. However, the role of debridement is limited, since the deteriorating cartilage and bone cannot be altered and the pain and symptoms will eventually return. This is especially true in end-stage osteoarthritis, where arthroscopy is almost never recommended since no relief may be obtained. In severe knee arthritis, arthroscopy is currently reserved for those patients who are unable to undergo a definitive open procedure or for those who have a specific mechanical symptom (e.g. a loose body floating in the knee, etc.). It is important to note that an arthroscopic procedure done solely for arthritis will usually result in temporary relief only.

### **Arthroscopy with Bone Void Fille**

As the cartilage wears down and arthritis progresses, the underlying bone can be affected. This may result in changes such as bone marrow edema ("bone bruise") or even an underlying subchondral fracture ("stress" or "insufficiency" fracture). When these changes occur an arthroscopy may be indicated, supplemented with a bone void filler. This involves injecting a calcium or bone-like substance within the bone to fill the damaged bone area (fig.3). This substance is usually incorporated into the surrounding bone with no allergy or rejection. As with routine arthroscopy



Fig 3. Knee after bone void filler placement (circled)

this procedure is not definitive and will not alter the cartilage or bone, so symptoms may return in the future.

### Osteotomy

As mentioned earlier, arthritis progresses and the bony alignment changes causing worsening pain, deformity, and instability. An osteotomy is a surgical procedure to cut and realign the bone to a more anatomic state. This is usually done at the proximal tibia or distal femur (fig.4). Osteotomies are useful not only in correcting deformities but also in offloading the affected knee

compartment. These procedures can be done in conjunction with others such as cartilage restoration, ligament reconstruction, meniscus repair or transplant. However, while osteotomies are an effective treatment option, they are contingent upon good bone quality and healing. They may also not be effective in severe end-stage osteoarthritis if the deformity is too great. Thus, osteotomies are typically reserved for younger patients who have suffered early onset arthritis or may not yet be candidates for knee replacement.



Fig 4. Knee after medial opening wedge high tibial osteotomy

### **Partial Knee Arthroplasty**

Arthroplasty, or knee replacement, is typically reserved for end-stage osteoarthritis when a bone-on-bone appearance is noted. There are 3 main compartments within the knee and occasionally the worst arthritic changes may be limited to one compartment. In cases of isolated unicompartmental disease the patient may be a candidate for a partial knee replacement,

which replaces the arthritic bone and cartilage with metal and plastic prostheses (fig.5). When indicated partial knee replacements may be a more attractive option to total knee replacement, as it maintains most of the native knee and the kinematics of the knee are better preserved (i.e. may feel like a more "normal" knee). Additionally, recovery time is usually shorter than a total knee replacement. However not every patient is a candidate for partial knee replacement, as arthritis typically affects the entire joint.



Fig 5. Knee with medial partial knee replacement

### **Total Knee Arthroplasty (TKA)**

A total knee replacement is performed when a patient has end-stage arthritis in all compartments of the knee and has failed conservative treatment. To simplify, the ends of the diseased portions of bone and cartilage are carefully removed and resurfaced with a metal prosthesis. A plastic spacer is

inserted between the bones, allowing movement at the joint (fig.6). Along with arthroscopy, joint replacement is one of the most common orthopaedic knee procedures performed globally. It has been proven as an effective, reliable, and durable treatment option for end stage arthritis. Satisfaction rate is high, with literature showing ~85-90% satisfaction rate and 90-98% survivorship at 10 yrs. These numbers decrease with younger patients, possibly due to increased activity level and expectations. Over



Fig 6. Knee with total knee replacement

the years, advances in technology have led to robotic-assisted and navigated TKA. With these modalities surgeons can now construct a pre-operative plan using software and perform the surgery with computer guidance, possibly resulting in more accurate and reproducible bone cuts. Improvements in anesthesia protocols and pain management have also resulted in TKA being done as a same-day or overnight procedure.

To summarize, there are many surgical procedures available for the treatment of knee arthritis. As no two patients are alike, different patients may require different treatment recommendations. At UOA, we aim to provide an a la carte treatment plan individualized to each patient. Our physician specialists are highly skilled and have done hundreds of these procedures, incorporating the latest techniques and technological advances to offer the optimal surgical solutions and maximize patient outcomes. If you suffer from knee pain, please feel free to schedule a consultation with one of our knee specialists today.

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# Why Are There So Many Surveys?

### At UOA, we strive to be a leader in orthopaedic care. OUTCOMES REALLY DO MATTER!

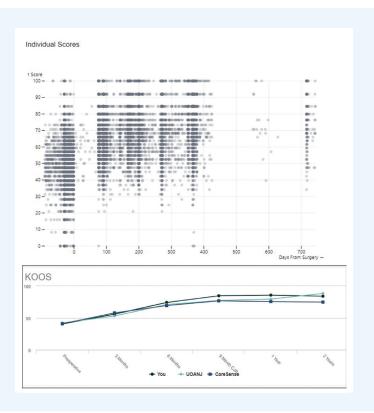
### "Why are there so many surveys?"

We know that our patients are busy, and you may often be bombarded by seemingly endless surveys. Everyone wants your opinion whether it's on dining experience, service, or your experience with an online purchase. We totally understand. However, some surveys may be important when it comes to your health and well-being. The survey that you may receive from UOA/Caresense prior to and after your surgery, may be the most important ones you complete.

Our physicians are constantly working to provide their patients with the best surgical outcomes possible. One way to measure these outcomes is by completing patient reported outcome measures (PROMs) which are validated tools (surveys) that assess your functional, emotional and general health status. Who better to judge your recovery than you? Most physician groups don't take the time to collect PROMs or to really consider the patient's perspective. At UOA, we strongly believe that your input is important to a successful surgical outcome, because OUTCOMES REALLY MATTER!

### Who receives PROMs and how often will you receive them?

We send out PROMs to every patient who is undergoing elective surgery. It is important to assure that we have a valid cell phone and email address on your intake forms in order for us to assure that you receive the survey. Patients will receive both an email and a text message from your doctor/UOA/Caresense asking you to complete the survey. We ask our patients to complete the survey once before surgery, (Pre-operative survey) and then at 3 months, 6 months, 1 year and 2 years after your surgery.



### What can we learn from your completed PROMs?

We can note your pre-surgical status and help you to decide that surgery is necessary. The post-operative surveys are important to track your recovery. We analyze our entire patient reported outcomes and we can identify if you may be having functional problems and intervene sooner in order to improve your care. They may also be used to help our physicians modify physical therapy, or for determining the early return to sports and activities. Long-term outcomes can help our physicians determine best options for future patients. These surveys ARE IMPORTANT and really do play a role in maximizing your care.





MARK S. BUTLER, MD

# Pickleball, Pickleball, Opickleball, Chickleball, Chickle

Pickleball is the new "hot" sporting craze around the United States.

The US Pickleball association notes participation levels have doubled since 2021 with over 9 million people now playing the game.



Pickleball is similar to the game of tennis, but it is played on a much smaller court, with a plastic ball and wooden paddles. The sport was originally created in 1965 on Bainbridge Island in Washington by 4 people who were looking to play something new. Originally played with a wiffleball, hit over a badminton net with ping-pong paddles, the equipment is now standardized. The game's unusual name comes from the "pickleboat" title given to crew races that were thrown together with non-starters at the University of Washington.

The sport has gained popularity among active seniors who have embraced the game which is fun, social, and competitive, but does not involve as much movement as tennis. Lately, pickleball popularity has soared among all age groups who are looking to get in on the fun.

Like any sport, participation in pickleball can result in an orthopaedic injury to the upper and lower extremities. A 2024 study presented at the American Academy of Orthopaedic Surgeons noted that there has been a 200% increase in fractures associated with pickleball over a two-decade period. Most injuries are associated with falls on the court with 85% of injuries occurring in individuals older than 60. It is estimated that there are over 29,000 pickleball injuries reported each year including 5,400 pickleball related fractures in the US. Women over the age of 65 suffer upper extremity fractures more frequently than men, while men are 2-3x more likely to be admitted to a hospital after sustaining a fracture in the lower body including fractures of the ankle, hip and femur.

The most common injuries associated with pickleball are strains and sprains. Men are 3.5 times more likely to suffer soft tissue injuries. Rotator cuff injuries, Achilles strains, an increase in arthritis symptoms and foot fractures are also not uncommon injuries seen in the game of pickleball. These occur at all levels of play, but often occur to individuals who are highly competitive. Slip and falls are the predominant injury mechanism seen and are similar to other racquet sports, but with an increasing number of injuries, particularly among older aged athletes.

The benefits of playing pickleball are many. Increased social interaction and physical exercise can contribute to stress-reduction, and a healthy lifestyle. It is also important however, to consider some injury reduction recommendations prior

to participating. Older athletes should see a primary care physician who should clear older athletes to participate in exertional exercise. Those who have a family history of frequent fractures or who are over 65 should consider having a Dexa Scan to assess their bone health.

It is a good idea for all pickleball players to be involved in a strengthening program for the lower extremity. Whether it is formal resistance training or involvement in a gentle aerobic program, strengthening is important. Cross-training, or training that involves different activities or sports is an important modality for preventing injury. Strength training that focuses on the leg muscles that cross the knee can improve stability and prevent a serious strain, sprain or fracture. Use of proper shoes with good arch support and heel support may help to improve stability and decrease foot injury. For those with a prior knee or ankle injury, use of a supportive knee or ankle brace may also be beneficial for reducing injury.

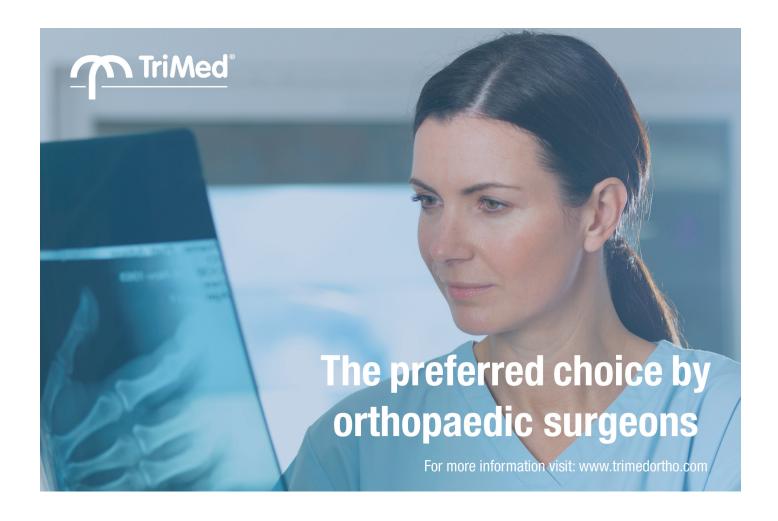
In any sport participation, it is important to warm up, break a light sweat and stretch prior to playing in a game. Understanding the mechanics of the swing, the basics of the sport, and what participation entails, is important. A little practice before playing in a competitive game can help to refine skills and reduce injuries. Competitive pickleball players should consider practicing how to fall and roll onto their side vs falling onto an outstretched arm/hand. Those who have had ankle and knee sprains in the past, might consider wearing a brace or compressive sleeve.

Pickleball can be a fun and engaging life-long sport. It is particularly important for older athletes to prepare for the demands of the game and to exercise a little caution before jumping "all into" the game.

If you do happen to suffer an injury while playing pickleball, UOA is here to provide the best of care and return you to the court in a fast and safe manner.



For more information about Pickleball and injuries associated with it, please view this UOA video discussion.



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### **UOA** Research

### Meniscal and Articular Cartilage Predictors of Outcome After Revision ACL Reconstruction: A 6-Year Follow-up Cohort Study.

MARS Group; Wright RW, Huston LJ, Haas AK, Pennings JS, Allen CR, Cooper DE, DeBerardino TM, Dunn WR, Lantz BBA, Spindler KP, Stuart MJ, Albright JP, Amendola AN, Andrish JT, Annunziata CC, Arciero RA, Bach BR Jr, Baker CL 3rd, Bartolozzi AR, Baumgarten KM, Bechler JR, Berg JH, Bernas GA, Brockmeier SF, Brophy RH, Bush-Joseph CA, Butler JB 5th, Campbell JD, Carey JL, Carpenter JE, Cole BJ, Cooper JM, Cox CL, Creighton RA, Dahm DL, David TS, Flanigan DC, Frederick RW, Ganley TJ, Garofoli EA, Gatt CJ Jr, Gecha SR, Giffin JR, Hame SL, Hannafin JA, Harner CD, Harris NL Jr, Hechtman KS, Hershman EB, Hoellrich RG, Johnson DC, Johnson TS, Jones MH, Kaeding CC, Kamath GV, Klootwyk TE, Levy BA, Ma CB, Maiers GP 2nd, Marx RG, Matava MJ, Mathien GM, McAllister DR, McCarty EC, McCormack RG, Miller BS, Nissen CW, O'Neill DF, Owens BD, Parker RD, Purnell ML, Ramappa AJ, Rauh MA, Rettig AC, Sekiya JK, Shea KG, Sherman OH, Slauterbeck JR, Smith MV, Spang JT, Svoboda LSJ, Taft TN, Tenuta JJ, Tingstad EM, Vidal AF, Viskontas DG, White RA, Williams JS Jr, Wolcott ML, Wolf BR, York JJ.Am J Sports Med. 2023 Mar;51(3):605-614. doi: 10.1177/03635465231151389. Epub 2023 Feb 3.PMID: 36734487

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CC.23.00423. eCollection 2024 Apr 1.PMID: 38579103

### Nonoperative Management of High Ankle Sprains: A Case Series With ≥18-Year Follow-up

Eric D Nussbaum<sup>1</sup>, Jeremy Silver<sup>1</sup>, Aleksandr Rozenberg<sup>2</sup>, Natale Mazzeferro<sup>3</sup>, Patrick S Buckley<sup>1</sup>, Charles J Gatt Jr<sup>1</sup> Am J Sports Med 2024 Sep;52(11):2807-2814.

doi: 10.1177/03635465241271593. Epub 2024 Sep 5. PMID: 39235770

DOI: 10.1177/03635465241271593

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# 10 Years Later:

# Dr. Sagebien recently reunited with Tracy Morgan to discuss his terrible trauma.

A traffic accident is no laughing matter, especially when it results in significant injury. Tracy Morgan, the Emmy award winning comedian, entertainer, best known from his time on NBC's 30 Rock and Saturday Night Live, knows all too well that an accident can change your life in an instant. A ride home from Delaware after a comedy show in a limousine van ended abruptly when a Walmart truck hit them in 2014 causing a six car pile-up. The accident resulted in the death of his friend Jimmy McNair. Several other passengers in the van were critically injured including Tracy who suffered a significant traumatic brain injury, multiple rib and facial fractures as well as a severely shattered femur. Luckily, he was transported to Robert Wood Johnson University Hospital, a Level I Trauma center in New Brunswick, where he was cared for by University Orthopaedic Associates' Dr. Carlos Sagebien, a fellowship trained Orthopaedic Trauma Surgeon and fracture specialist.

"I was getting my trauma briefing at 7 am Saturday morning and as they moved down through the list, I found out that Tracy Morgan had been in a horrific accident early that morning and was in the ICU with a significantly comminuted femur fracture. Complicating the situation was the fact that he had multiple facial and rib fractures, a significant brain trauma and some pre-existing medical comorbidities.

When I pulled up his femur x-rays, I noticed that his femur was shattered into multiple pieces and with his other injuries; he was in a very dire situation. Secondary to his head trauma and clinical instability, the ICU/trauma team at RWJ asked me to hold off performing surgery until Tracy could be in a more stabilized state, so we waited until the next day to fix his femur. They wanted to wait another day, but I felt like it would be beneficial to do surgery sooner rather than later to allow

Tracy to sit up in bed and mobilize sooner in order to help keep his brain pressures lower and minimize risks associated with being stuck in traction another 24 hours. The trauma team agreed and we proceeded with the surgery early Sunday morning less than 36 hours from his trauma. Luckily Tracy did great during surgery and the case went extremely well. In Tracy's case, despite his significantly comminuted fracture, he had just enough good bone on either end of the femur to allow us to stabilize the bone through several small incisions, and give him a good chance for a full recovery while minimizing the risk of significant complications that would have been associated with the alternative much larger, more invasive surgery. I was able to put a titanium rod through 4 small incisions, which helped to minimize his infection risk and allowed his bone to heal rapidly. At 1 year, his femur was 100% healed."

Tracy says he doesn't remember anything about the accident or the first several weeks in the hospital. Dr. Sagebien said that "Tracy was barely recognizable as he had significant facial trauma and swelling. The trauma team at RWJ did an incredible job managing his other injuries and expediting his recovery. "After surgery, the team immediately started mobilizing Tracy with physical and occupational therapy and he was even out of bed to a chair the day after surgery.

"The whole deal was a very traumatic experience. I lost a friend and I suffered many injuries. Thank the lord that he gave me Dr. Sagebien to help put me back together. Today I feel great! I work out 3 x week, and do 1-2 shows a week. I made it to the Emmys 1 year later to a standing ovation. There were lots of tears that night as people realized how lucky I was to be there. I'm in a good place with my daughter and can't wait to walk her down the aisle."





Dr. Sagebien visited Tracy several months later at his home after he left the hospital . "I knew at 3 months that Tracy was going to recover well because he was excited to show me how hard he was working with all of his home exercises and how far he could go with his walker. Surgery is the easy part. Recovery is the toughest.

You have to put effort into your recovery and I saw Tracy was working hard to get back."

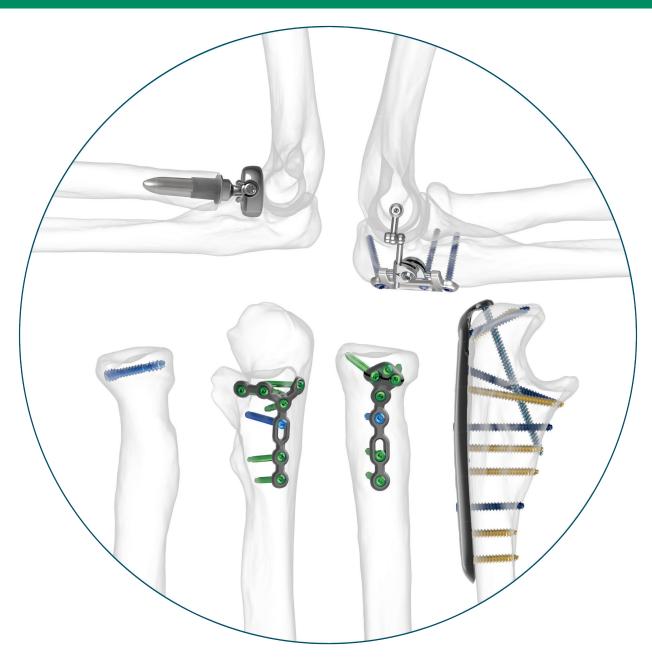
"After I was in the hospital, Eddie Murphy came to visit me and he told me Tracy, you got a long recovery ahead and you need to work hard to get back. You can do this'. I knew I had to work hard to recover," noted Morgan.

No one ever plans to suffer a traumatic injury, but it is reassuring to know that there are physicians like Dr. Sagebien, who have the expertise to handle the challenging cases. UOA Trauma trained surgeons provide trauma care at Robert Wood Johnson University Hospital and Jersey Shore University Hospital Trauma centers. We hope you never need us, but we are here when you do.

Thanks to the team at Robert Wood Johnson University hospital and University Orthopaedic Associates, Tracy Morgan is back to doing what he loves: spending time with his family, cheering courtside for the NY Knicks, acting, and touring around the country doing stand-up!

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# Bridge-Enhanced ACL Repair (BEAR)

There are over 400,000 anterior cruciate ligament tears (ACL) in the US each year. Most occur to young athletes or active individuals. Traditionally, most, but not all patients who suffer an ACL tear will undergo an ACL reconstruction using either an autograft (tissue from your own body), an allograft (tissue from a donor) or a synthetic graft (made from synthetic material).

More recently, a new procedure called the bridge-enhanced ACL repair (BEAR) is gaining some popularity. The BEAR procedure utilizes an absorbable protein-based implant (sponge) to connect the two ends of the torn ACL. The sponge implant is then filled with an injection of the patient's own blood to facilitate healing of the ligament. Over time, the plug is reabsorbed and the ligament heals. The procedure was first done in a human in 2015, and formally approved by the FDA in 2020. Primary repair of the ACL is not a new concept, as it was originally performed in 1970's and early 80's, but it did not

gain popularity since almost 50% of the repairs re-ruptured in the first 2 years.

The BEAR procedure has been shown to have similar return rates with traditional ACL reconstructions, and has demonstrated superiority to ACL primary repairs which were performed prior to BEAR. Patients appear to have less initial pain vs ACL reconstruction patients because they don't have to recover from the graft harvesting process needed with ACL reconstruction patients.

A randomized controlled trial utilizing BEAR vs hamstring autograft has shown that patients who utilize the BEAR have superior hamstring strength vs those who utilize a hamstring autograft. The BEAR MOON study is ongoing to randomly compare the BEAR vs patellar tendon autografts, which is the gold standard for athletes.

Long-term studies are needed to see how the BEAR technique performs over time. The BEAR III trial just completed enrollment and will look to study the 10 year performance of the procedure.

As of June 2024, there have been over 3,000 BEAR procedures performed in the US. Following FDA approval in 2020, UOA physicians were the first in New Jersey to receive training and perform the technique. To date we have performed over 15 BEAR procedures who are at least 1 year post-operation, and have returned to sporting activity with good results.

Patients should remember that ACL reconstruction has shown good long-term results for athletes and active individuals and has stood the test of time. Newer is not always better. Our physicians have been very selective about who is a good candidate for the BEAR since long-term results still need to be determined. Patients who are eligible for the BEAR should have good ACL tissue, including a good tibial stump, and an injury that is less than 50 days from injury to surgery. Some ACL tissue degrades with time so time to surgery has traditionally been considered important. However, the recent literature notes that quality of tissue is more important than time to surgery. A good conversation with a UOA Sports Medicine surgeon will help you to sort which procedure is best for your individual case.

### Here is what some of our patients who have undergone the BEAR procedure have to say:



### **Kerry Fee**43 year old, Female Soccer player

"I had an amazing experience with the whole process. It was a little slow for me the first 2-3 months as I felt good, but was on crutches, in a brace and limited to 90 degrees of motion for a long time. Dr. Gatt wanted to allow the ligament appropriate time to repair itself. Dino Pinciotti, my therapist re-assured me that it was the protocol and that I was doing great. After functional testing, I scored an 80/80, was 100% functional, cleared from physical therapy and encouraged to begin my return to soccer at 10 months. My full return was a gradual process. At 1 year, I played 80 minutes in my first game back and I did it without the need for a brace. That was our goal; full return with no brace! I can honestly say that after completing my rehab, I'm in better shape now than before I got hurt."

My recommendation for others: "If you have time for a long early recovery, and you're a candidate for the BEAR procedure, GO FOR IT! You will have your own ACL, not a substitute, and you will end up stronger and better in the end. I can't say enough about my experience; Dr. Gatt, Dino, and UOA were amazing."

### **Gregory Flynn**37 year old recreational athlete

"I had a good experience with the entire process. Dr. Gatt was great. The knee that underwent the BEAR procedure was relatively quick to heal. Physical therapy was great and I feel like I came out stronger than before surgery. I went through ACL reconstructions on both knees. I underwent an ACL patellar tendon autograft with a different doctor on my right knee, several years earlier and the BEAR procedure on my left knee done by Dr. Gatt. My left knee recovered quicker. I didn't have the anterior knee pain that I had with my right knee, I was able to get my knee straighter so much quicker, and my muscular strength came back stronger than before surgery!"

My recommendation to others: "I would recommend the BEAR procedure to others and feel like it is important to get to PT early and often after surgery. It is really up to you to rehab fully. I did my therapy at UOA and felt like having the surgeon and the PT in the same facility was beneficial. I know the PT and doctor communicated directly and frequently during my recovery."

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COL(Ret.) Tom Rawlings RN, MSN, CNS-CP(E), CNOR Director Clinical Affairs

# **OR Efficiency Now**

Healthcare facilities face increasing staffing challenges with a growing backlog of surgical procedures. Onboarding staff quickly with the right just-in-time training is vital in helping alleviate staffing strains. With current perioperative staffing, OR managers are challenged in streamlining processes in order to maximize efficiency while providing safe patient care and minimizing staff burnout. Several IT solutions exist to help OR managers with surgical and personnel scheduling, but a lack of surgical equipment solutions still exists.

An integrated solution consisting of a three-tiered surface back table with a workflow management application (app) for back table set up and surgical procedure progression can help alleviate some of these challenges. Two separate observational studies focusing on the use of the three-tiered back table compared to a flat table surface for the same surgical procedure showed favorable outcomes in setup time, breakdown time, visibility/accessibility of surgical instrumentation, tray movements, and average pounds lifted during the case.

Another highlight of the triple-tiered back table is that it can be used for any procedure with its 4-1 modularity allowing the positioning of shelves to best fit the case set-up (Figure 2). It can also be used as a flat surface back table. Using the same back table for every procedure cuts down on turnover times. Also, the height of the table is adjustable up and down 6" preventing bending over or reaching up by surgical technicians to get surgical instruments. No other back table currently on the market has this height adjustability feature.

### Flat Table vs. Three-tier Table



### **Before and After**





Figure 1



With the addition of a workflow management app, the integrated solution can also be used as a resource for establishing repeatable processes such as standardized back table set ups and case progression (Figure 3). A surgeon's procedure can be uploaded to match what works best for the perioperative team. The app can be utilized as a just-in-time training tool for new or inexperienced staff or as an onboarding tool for new staff.

A multi-disciplinary team approach is recommended to assess perioperative challenges while coming up with evidence-based solutions. The use of a multi-tiered surface workstation with a workflow management app can provide a solution to these challenges while improving efficiency.



Figure 3



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**Workflow App:** Standardizes procedures, supports proactive training, and streamlines onboarding for new staff.



### **CONTACT US FOR MORE:**

info@dinamicor.com dinamicor.com





# UOA Spine Surgeons Utilize Barricaid Annular Closure Device to Reduce the Risk of Re-herniation

Disc herniations are common injuries that occur to the lumbar spine. These herniations will sometimes pinch a nerve and can cause significant back pain and nerve pain that radiates to the leg. Some patients will get better with non-surgical treatment; however, others require surgery to remove the herniated disc fragment to relieve pressure on the nerve. Patients who undergo lumbar discectomy surgery achieve excellent relief of nerve pain after surgery.

One challenge is that the herniation leaves a tear or gap in the back wall or lining of the disc, referred to as the annulus. This tear heals partially over time however it is a "weak spot" through which a re-herniation may occur. Until recently, there has been no reliable surgical solution to prevent recurrence of a disc herniation.

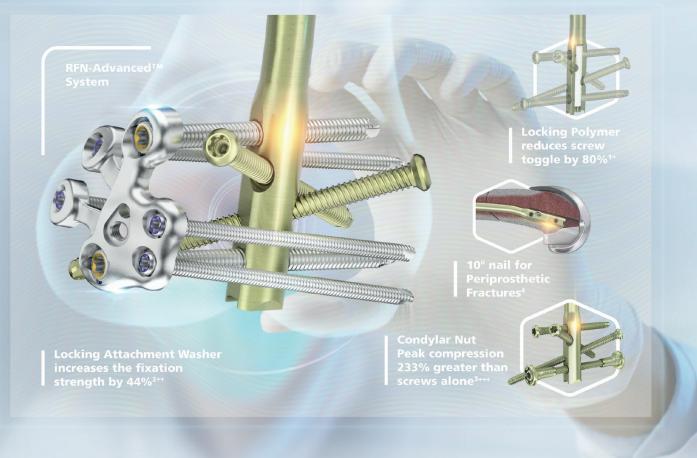
Our surgeons can now utilize a Barricaid Annular Closure Device, a very promising and innovative technology designed to reduce the risk of re-herniation. This involves the implantation of a tiny device that has a titanium bone anchor and a polymer mesh that plugs the annular tear or weak spot in the back of the disc. The device is implanted at the time of the discectomy surgery. This device has been shown to reduce the risk of recurrent disc herniation. Consequently, this may help expedite the postoperative recovery and ensure even better long-term outcomes for our patients.

If you are a patient who is suffering with a herniated or bulging disc we encourage you to make an appointment with one of our fellowship trained spine surgeons to discuss if you are a candidate for disc surgery and the possible use of the Barricaid implant.





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Bench testing may not be indicative of clinical performance
+ Compared to a nail without locking polymer
+++ Compared to nailing alone
+++ In a poor quality foam model



# State-of-the-Art: Rotator Cuff Tears in 2024

Rotator cuff tears are a common yet complex issue, often affecting those who engage in repetitive overhead activities, experience age-related degeneration, or suffer a trauma. This condition can cause significant pain, decreased mobility, and functional impairment, making effective treatment crucial for maintaining quality of life. First-line treatments often include physical therapy, steroid injections, and anti-inflammatories. However, in recent years, significant advancements have been made in the management of rotator cuff tears, ranging from groundbreaking non-surgical interventions to innovative surgical techniques.

### Regenerative Medicine: Platelet-Rich Plasma (PRP) and Stem Cell Therapy

Platelet-rich plasma (PRP) therapy and stem cell treatments are being studied as non-surgical options for the treatment of select rotator cuff injuries.

Platelet-Rich Plasma (PRP) Therapy: PRP therapy involves drawing a small amount of the patient's blood, processing it to concentrate the platelets, and then injecting this concentration directly into the injured shoulder. Platelets contain growth factors that can stimulate healing and tissue repair. Some studies have shown that PRP can reduce pain and improve function in select patients with rotator cuff injuries. This can be used before or during surgery.

Stem Cell Therapy: Stem cell therapy is another promising approach, where stem cells are harvested from the patient's own bone marrow or adipose tissue and then injected into the injured area. These cells have the potential to differentiate into various types of tissues, including those needed for rotator cuff repair. Early research has indicated that stem cell injections may enhance tendon healing and improve functional outcomes. This can be used before or during surgery.

### Improved Surgical Techniques: Arthroscopic Innovations

**Arthroscopic Surgery:** This minimally invasive technique used to treat rotator cuff tears has seen significant advancements.

These innovations offer less trauma to the patient, reduced recovery times, and better outcomes. New high-definition cameras and more precise surgical tools allow for enhanced visualization and precision during the repair process.

**Double-row Rotator Cuff Repair:** The double-row repair technique provides more robust fixation and improved tendon-bone contact by anchoring the tendon between two rows of anchors. This method has been shown to increase the likelihood of tendon healing and improve shoulder strength and function.

New Anchor Technology: Newer implants made entirely of suture have stronger pull-out strength and a smaller footprint than their metal or plastic counterparts. This allows for the use of more anchors to provide additional points of fixation, a stronger repair, and improved outcomes.

**Tendon Bioenhancement:** Researchers are exploring the use of bioenhancement techniques, such as the application of biologically active substances (e.g., growth factors or extracellular matrix components) during arthroscopic repair. These methods aim to improve tendon healing / integration with the bone, potentially leading to better long-term outcomes.

### **Enhanced Rehabilitation Protocols**

Effective rehabilitation is critical for recovery from rotator cuff surgery or non-surgical treatment. Recent advancements in rehabilitation protocols have focused on optimizing recovery and reducing the risk of re-injury.



Progressive Loading and Motor Control Training: Modern rehabilitation approaches emphasize progressive loading and motor control training. This involves gradually increasing the load and complexity of exercises to help the shoulder regain strength and stability. Motor control training helps patients re-learn proper shoulder mechanics, reducing the risk of compensatory movements that could lead to further injury.

Virtual Reality and Digital Tools: The integration of virtual reality (VR) and digital tools into rehabilitation programs has shown promise in improving patient engagement and outcomes. VR-based exercises can simulate real-world activities and provide immediate feedback, enhancing the effectiveness of rehabilitation. Additionally, wearable sensors can monitor progress and ensure that exercises are performed correctly.

Personalized Rehabilitation Programs: Advances in data analytics and individualized assessment tools have enabled the development of personalized rehabilitation programs. By considering factors such as the patient's specific injury characteristics, activity levels, and overall health, these programs can be tailored to meet individual needs and optimize recovery.

### **Biomaterials and Tendon Repair**

The development of new biomaterials is another exciting area in the treatment of rotator cuff tears. These materials aim to improve tendon repair and integration with the surrounding tissues.

Synthetic Scaffolds: Researchers are developing synthetic scaffolds that can support tendon repair and regeneration.

These scaffolds are designed to mimic the natural extracellular matrix, providing a conducive environment for tissue growth and integration. Some scaffolds also incorporate growth factors or other bioactive substances to enhance healing.

**Bioengineered Tendon Grafts:** Advances in tissue engineering have led to the creation of bioengineered tendon grafts. These grafts can be used to replace damaged tendons or augment the repair process. By using a combination of synthetic materials and biological components, these grafts offer the potential for improved healing and function.

### **Patient-Centric Approaches**

The shift towards patient-centric care has also influenced the management of rotator cuff tears. Personalized treatment plans, involving a multidisciplinary team of healthcare providers, ensure that each patient receives the most appropriate care for their specific needs.

Patient Education and Shared Decision-Making: Educating patients about their condition and treatment options empowers them to make informed decisions. Shared decision-making involves discussing the benefits, risks, and alternatives of various treatments, allowing patients to play an active role in their care.

**Long-Term Follow-Up and Monitoring:** Emphasis on long-term follow-up and monitoring helps identify and address potential issues early. Regular assessments and adjustments to treatment plans based on patient progress can lead to better outcomes and prevent complications.



### Conclusion

The treatment of rotator cuff tears has advanced significantly in recent years, offering patients a range of options to address their condition effectively. From innovative non-surgical interventions like PRP and stem cell therapy to refined surgical techniques and personalized rehabilitation programs, these advancements are enhancing patient outcomes and improving recovery experiences. As research continues and new technologies emerge, the future of rotator cuff repair holds even greater promise for those affected by this challenging condition.



Why should you consider a UOA joint replacement specialist for your total joint arthroplasty?

### **Training:**

All of our total joint replacement surgeons are fellowship trained, hold clinical academic appointments at Rutgers, Robert Wood Johnson Medical School where they help to train future orthopaedic surgeons.

80% of orthopaedic surgeons are considered "general" orthopaedists, as they treat various orthopaedic issues vs specializing in a specific orthopaedic domain like joint replacements. UOA joint replacement surgeons primarily manage patients who may be candidates for joint replacement surgery. Our physicians utilize the latest technology like robotics, and surgical pre-planning to maximize our outcomes. UOA surgeons work closely with Anesthesiology physicians to optimize your pain control while minimizing your use of opioid medication – Expertise Matters!

### Location:

With six different office locations in central New Jersey, our offices are located close to home. There is no need to travel into a big city, having to deal with traffic, tolls and concerns for parking. As New Jersey's largest orthopaedic practice, we provide top-level care right here in the Garden State. – Why travel when you do not need to?

### Volume:

The American Academy of Orthopaedic Surgeons (AAOS) sponsors the American Joint Replacement Registry (AJRR) which collects data on joint replacement surgeries. The median number of joint replacements that are performed by physician who participates in the AJRR is 39 Total Hip arthroplasties(THA)/year, and 56 Total Knee Arthroplasties (TKA)/year. Each of our fellowship trained, Joint replacement specialists performs >400 TKA and THA/year, qualifying them as high volume joint replacement surgeons. This is important to consider as outcomes have been shown in the medical literature to be better and revision surgery 43% less among high volume physicians.

An article published by a group from the Cleveland Clinic in the J Arthroplasty in 2022 noted that 93% of THA and 88% of TKA were performed by surgeons with sub-optimal volumes under <260/year. – We are high volume!

### **Outcomes:**

The Centers for Medicare and Medicaid Services (CMS) has designated that physicians must justify their care with the use of Patient Reported Outcome Measures (PROMS). In particular, at least a 20 point improvement in the Hip Disability and



Osteoarthritis Outcome Score (HOOS Jr.) and >22 point improvement in the Knee Osteoarthritis Outcome Score (KOOS Jr) are considered necessary for a good outcome. All of our total joint specialists exceed the CMS expectations.

Perhaps more importantly, >99% of their patients are highly satisfied with their physician and outcome and they would recommend their surgeon to a friend or family member. – Our patients are highly satisfied with their care!

#### **Revisions:**

Revision rates have been shown to be higher for physicians who perform a low volume of TJA. Many patients who have had surgery at other practices come to UOA to have their TKA/THA revised. Our physicians perform a significant number of total joint arthroplasty revision surgeries each year and receive a good number of referrals from other TJA surgeons. — We handle the tough cases!

#### **Patient Education:**

At UOA we want our patients to be actively involved in their TJA care. Consequently, we have partnered with Caresense to provide each patient who undergoes TJA with access to our Care Pathway. The Care Pathway provides valuable patient information and messaging starting two weeks before your surgery and continues through your recovery. The pathway information is delivered to the patient through text or email and survey results show that 99% of patients who have utilized the pathway were satisfied with their surgical experience. — Patient experience matters!

#### **Physical Therapy:**

Most UOA offices provide physical therapy adjacent to the physician offices. This enhances physician and therapist communication and enhances patient care. UOA therapists work closely with our physicians to facilitate your recovery and optimizes your outcomes. — Outcomes matter!



We know that having a TJA may be unsettling, but you should also know, that expertise matters and we strive to provide you the best of care. You have come to the right place.

### **Tensionable and Knotless**

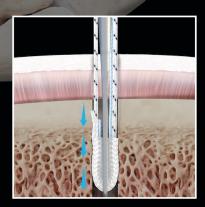
Feel the difference with no-profile DX Knotless FiberTak® anchors and the Knotless *Internal*Brace™ technique



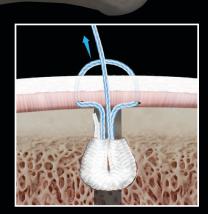


1.8 mm drill hole

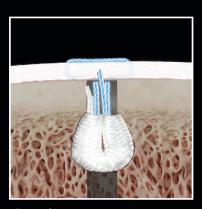
Tensionable, knotless soft-anchor ligament repair with the *Internal*Brace technique



Pass it...



Cinch it...



Cut it.



Learn more about DX Knotless FiberTak anchors and the *Internal*Brace technique



Celebrating 10+ years of the *Internal*Brace ligament augmentation procedure

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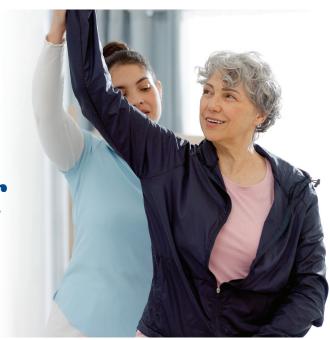
The InternaBrace surgical technique is intended only to augment the primary repair/reconstruction by expanding the area of tissue approximation during the healing period and is not intended as a replacement for the native ligament. The InternaBrace technique is for use during soft tissue-to-bone fixation procedures and is not cleared for bone-to-bone fixation.





JAMES T. MONICA, MD

# Total Shoulder Replacements



The normal bony structure of a shoulder is somewhat like a golf ball sitting on a golf tee. The head of the humerus (arm bone) is rounded like a ball, fits onto the glenoid (part of your scapula) which is a concave, cup-like structure. It is further stabilized by the labrum (a lip of cartilage) which wraps around the glenoid and helps to deepen the cup. The shoulder capsule which is made up of ligaments and the 4 rotator cuff tendons, helps to keep the humeral head on the glenoid. The ends of the bone are covered by articular cartilage, which helps to facilitate smooth motion. When the articular cartilage is compromised due to injury like a fracture, by degenerative joint disease also known as osteoarthritis, range of motion may be compromised and pain with motion can become a big problem.

For those patients with significant limited and painful motion, shoulder replacement or total shoulder arthroplasty (TSA) may be an option. TSA utilizes a metal and plastic implant to replace the ball and cup of the shoulder. TSA can either be anatomic or reverse. The anatomic procedure utilizes implants that replicate the "anatomic position" of a rounded humeral head seated on the concave glenoid. It is historically the most-common procedure.

The reverse procedure utilizes the ball portion of the implant off the scapula instead of the humerus (upper arm bone) which essentially flips the location of the rounded humeral head. Reverse procedures are generally recommended for patients who have massive rotator cuff tears, that may have issues stabilizing the shoulder joint or for those who are undergoing a shoulder joint revision. Reverse TSA has grown significantly over time. Both procedures offer patients very good outcomes.

The American Academy of Orthopaedic Surgeons estimates that greater than 53,000 TSA are performed in the US each year.

The National Implant Sample (NIS) which collected data from 1988-2017, found that there were over 825,000 patients who were living in the US with a TSA. Patient reported outcome measures note that TSA can provide substantial pain relief and functional benefits for patients who have limited motion and pain.

As TSA grows in popularity with patients, innovations have improved patient outcomes. Materials and design of Implants are improving. Pre-surgical preparation is also continually evolving featuring improved and more precise pre-surgical radiographic measurements. No longer are shoulder replacements a "one-size-fits-all", but rather they are customized to match the patient. Surgical approach including the use of patient specific guides and augmented reality can lead to more precise component placement accuracy, improved implant longevity and ultimately in improved early/mid patient reported outcomes and function.

Following TSA, patients are typically discharged the same day from the surgery center or hospital thanks to pain management with a nerve block that can offer two to three days of pain relief. Patients remain in a sling for four weeks following surgery. Physical therapy begins typically around two weeks after surgery and typically lasts for a total of 3-4 months.

It is important to find a surgeon who does a high volume of TSA as surgeon volume inversely correlates with length of hospital stay, with blood loss, and with surgical time. UOA, has high volume TSA surgeons, performing 30 vs 50 TSA each year. UOA surgeons utilize patient specific guides and augmented reality to increase glenoid component placement accuracy.

For more information about TSA, please visit a UOA Upper Extremity Specialist.





Friday night lights. The band is playing. The cheerleaders and fans are pulling for their team. Coaches are yelling, officials are blowing their whistles and adrenaline pumps through the high school athlete. The excitement is all part of the yearly ritual called High School Football. Early season games are often played in the heat of the fading summer, when excited athletes are often still working themselves into game playing shape. Nerves, excitement, demands of the heat, hydration and fatigue, pregame diets, all may play a role in an all-too-familiar phenomenon: Muscle Cramps.

When a player goes down with an injury, all hold their breath, hoping it is nothing serious. Most are relieved when they see the Athletic Trainer stretching the athlete's leg, quickly understanding "it's just a cramp". Indeed, this is not a season-ending injury. However, exercise-induced muscle cramps (EIMC) continue to frustrate athletes, coaches, athletic trainers and sideline physicians. Players may have a difficult time returning to play once cramps set in. They often recur, and no one wants to experience that pain again. But what causes muscle cramps and can we prevent them?

### The usual comment is: "Well, they should have hydrated better!" or "You need to eat more bananas pregame...."

"Gatorade!", "Salt tablets!", "Pickle Juice!" are routinely recommended, as the coach yells at the player to "take better care of your body". The frustration is palpable, as most involved think there is something the player could have done to prevent this.

One of the problems with exercise induced muscle cramps is we really do not understand what even causes them. EIMC often occur at the beginning of the season, during hot and humid days, leading many to assume weather related dehydration is the cause. The answer there, naturally, is to hydrate better.

When I listened to a high school senior—whom I knew well from a prior injury—proclaim "Doc, I swear I drank 4 gallons of water last night", only to cramp in the 2nd quarter, I knew hydration alone was not the issue. In fact, over hydrating could be part of the problem, leading to relative electrolyte deficiency.

But which electrolyte(s)? Is it potassium? "Eat bananas!" Or maybe sodium? "Salt tablets pregame!!!" Maybe a combination? "Take your Gatorlytes!". "Pedialyte is Doctor Recommended!" And don't forget about magnesium!

The truth is, we do not know. Numerous studies have attempted to define which electrolytes are responsible for EIMCs, but none have been definitively proclaimed the Winner (or Loser!). It may be all of the above. Or none of the above.



EIMC do not exclusively occur during the warmer weather. So maybe it is not electrolytes and hydration at all. An alternative theory is that muscle cramps are more related to an abnormal muscle-stretch reflex that occurs during maximal muscle fatigue. This causes an involuntary and unwelcome reflexive spasm of the muscle, most typically the calf muscles. Passive stretching of the affected muscle is often the sideline remedy to alleviate the painful cramp. Perhaps there is a stretching or warm up routine one could implement to help prevent the onset of cramps in the first place.

Before we can implement a prevention strategy, we need to understand the ailment better and help identify those at risk. Who gets muscle cramps? When? What are the game conditions at the time of the cramp? Humidity? Time of day? Does player position matter? Player size? BMI? Is the player a 2-way starter?

UOA physicians are beginning to tackle these basic questions, studying muscle cramps in high school athletes, in particular, football players. Once we learn some of these answers, we hope to be able to better prevent this all-too-common occurrence, and get back to what we love: playing and watching football!

### We would like to thank the following advertisers:



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# Achilles Tendon Tears: To Fix or Not to Fix? The Role of Minimally Invasive Surgery

The Achilles tendon is the largest and strongest tendon in the human body, playing a vital role in movements such as walking, running, and jumping. An Achilles tendon rupture is one of the most severe and debilitating orthopedic injuries, often resulting from a sudden calf muscle contraction or an extreme stretch. These injuries are reported at a rate of 11-37 per 100,000 individuals annually, with an increasing incidence among active individuals, particularly those aged 30-50, often referred to as "weekend warriors."

When it comes to treating Achilles tendon tears, surgery is often required. The choice of surgical technique is a critical decision, as it influences recovery times, complication rates, and overall outcomes. Let's take a closer look at the traditional open surgery and the more modern, minimally invasive surgical approach.

### The Open Surgical Approach: Challenges and Limitations

Historically, surgical intervention for Achilles tendon tears involved a large open incision along the back of the heel. This open approach allowed surgeons to directly visualize the tendon and perform the necessary repair, ensuring proper alignment and fixation. However, this method has notable downsides.

The open surgery typically leads to longer recovery times, a higher risk of infection, and increased scarring. Patients often experience more pain during recovery due to the large incision, and the risk of adhesions—where tissues stick together and interfere with movement—can extend the healing process. Additionally, open surgery tends to be more invasive, which may contribute to hospital stays and a more cumbersome rehabilitation period.

While traditional open surgery is still performed in some cases, many patients and physicians are turning to newer, less invasive techniques for better outcomes and a faster return to activity.

#### The Shift Toward Minimally Invasive Surgery

In recent years, there has been a significant shift toward minimally invasive Achilles tendon repair. This modern surgical technique involves small incisions and specialized instruments that allow the surgeon to access and repair the tendon with greater precision. The minimally invasive approach offers several advantages over the traditional open surgery:

- **Reduced Risk of Infection:** Infection rates for minimally invasive procedures are estimated to be less than 2.5%, compared to 11-15% for open surgery.
- Smaller Scars: The smaller incisions used in minimally invasive surgery result in less scarring, improving the cosmetic outcome and enhancing patient satisfaction.
- Faster Recovery: With less tissue disruption, minimally invasive surgery leads to a
  quicker recovery, allowing patients to return to their daily activities and sports sooner.
  Additionally, the risk of adhesions and complications is significantly reduced, which
  can further expedite healing.
- Enhanced Precision: Advanced surgical guides and tools allow for a more accurate tendon repair, reducing the risk of misalignment and improving the long-term strength and functionality of the tendon.

A key benefit of minimally invasive surgery is the ability to combine it with early rehabilitation programs. Research has shown that patients who undergo this approach often experience faster pain reduction, lower complication rates, and a quicker return to physical activity.

#### Case Study: Aaron Rodgers - A Testament to Successful Recovery

One of the most high-profile examples of a successful recovery following a minimally invasive Achilles tendon repair is NFL quarterback Aaron Rodgers. In 2023, Rodgers suffered a torn Achilles tendon, an injury that often ends athletes' careers. However, thanks to minimally invasive surgery, Rodgers was able to make a remarkably quick recovery. With a targeted rehabilitation program, he returned to play at a high level much sooner than expected. His recovery demonstrates the potential of this advanced surgical approach in helping athletes and active individuals regain their strength and mobility.

#### Why Minimally Invasive Surgery is a Game Changer

Minimally invasive Achilles tendon surgery represents a transformative shift in the field of orthopedics. By reducing the risk of infection, scarring, and complications, it offers a safer and more effective treatment option for Achilles tendon ruptures. This method allows for greater precision, faster recovery, and higher patient satisfaction, making it the preferred option for many surgeons and patients today.

As research continues to support the benefits of this approach, patients should discuss their treatment options with their physicians to make the best decision based on their individual needs and goals.







# Hesham Abdelfattah, MD Hand & Upper Extremity Surgery

Hesham Abdelfattah is a board certified orthopaedic surgeon with a specialty in the hand and upper extremity. He obtained his medical degree from the Texas Tech University Health Science Center's School of Medicine after earning his undergraduate degree from the University of Texas at El Paso. He completed an internship at Emory University in Atlanta, Georgia, and his residency at the West Virginia University School of Medicine. After his residency, he completed a hand and upper extremity fellowship at the Philadelphia Hand to Shoulder Center at Thomas Jefferson University Hospital, in addition to a shoulder and elbow surgery fellowship at the University of Pennsylvania.

#### **ACCOMPLISHMENTS**

- Named to the Castle Connelly Top Doctors list
- Named to the Philadelphia Magazine Top Doctors
- · Named to the Monmouth County's Top Doctors list
- Associate Residency Program Director, Department of Orthopaedic Surgery & Sports Medicine, Temple University Lewis Katz School of Medicine, 2018-2022
- Orthopaedic Educator of the Year Award, Department of Orthopaedic Surgery & Sports Medicine, Temple University Lewis Kats School of Medicine, 2021
- Academic appointment as an Associate Professor in the Department of Orthopaedic Surgery & Sports Medicine at Temple University Lewis Katz School of Medicine
- Academic appointment as a Clinical Instructor in Orthopaedic Surgery (Volunteer Faculty) at the Philadelphia College of Osteopathic Medicine
- Medical service trips to Honduras, Uganda, Guatemala, and Mexico
- Co-author of several peer-reviewed publications in prestigious medical journals, as well as a book chapter in Chapman's Comprehensive Orthopaedic Surgery, Fourth Edition
- Gold Humanism Honor Society, Texas Tech University HSC School of Medicine
- Dean's Ambassador for Texas Tech University HSC School of Medicine

#### **HOSPITAL AFFILIATIONS**

- · Hackensack Meridian Jersey Shore University Medical Center
- Surgical Institute (SI)
- University Center for Ambulatory Surgery (UCAS)



### William Baione, MD, MS

Joint Replacement Surgery

Dr. Baione is board certified in orthopaedic surgery. He obtained his medical degree from the Weill Cornell Medical College at Cornell University and his bachelor's and master's degrees in biomedical engineering from the University of Miami. He completed his internship and residency in orthopaedic surgery at UMDNJ Robert Wood Johnson Medical School followed by a fellowship in adult reconstruction and joint replacement at the Florida Orthopaedic Institute.

#### **ACCOMPLISHMENTS**

- Subspecialty trained in adult reconstruction and joint replacement
- Fellow of the American Academy of Orthopedic Surgeons (AAOS)
- Fellow of the American Association of Hip and Knee Surgeons
   (ΔΔΗΚS)
- Member of the International Congress for Joint Reconstruction
- Presented over a dozen professional research and grand rounds presentations
  - on various orthopaedic surgery topics
- Academic appointment as a Clinical Assistant Professor of Orthopaedic Surgery at Rutgers Robert Wood Johnson Medical School
- Conducted clinical, basic science and biomechanics research at numerous institutions including the Department of Biomechanics, Hospital for Special Surgery, Max Biedermann Institute for Biomechanics Research at Mount Sinai Medical Center, Miami Beach and Ryder Trauma Center, Jackson Memorial Hospital
- Outstanding Master's Student Award, University of Miami Dept. of Biomedical Engineering
- · Honors Graduate, University of Miami
- Society of Professional Hispanic Engineers
- Inducted into Tau Beta Pi Engineering Honor Society
- Inducted into Alpha Eta Mu Beta Biomedical Engineering Honor Society
- · Fluent in Spanish

#### **CLINICAL INTERESTS**

- Rapid Recovery Outpatient Same Day Hip and Knee Replacement
- Minimally Invasive Anterior Approach Total Hip Replacement
- Partial Knee Replacement, Certified Oxford Mobile Bearing Uni®
- Robotic Assisted Total Joint Replacement, Certified in MAKOplasty®
- Complex Revision Hip and Knee Replacement
- · Management of Periprosthetic Joint Infections
- Post-Traumatic Joint Replacement
- Periprosthetic Fractures

- · CentraState Medical Center
- Hackensack Meridian Jersey Shore University Medical Center
- · Hackensack Meridian Old Bridge Medical Center
- Hackensack Meridian Raritan Bay Medical Center
- Robert Wood Johnson University Hospital New Brunswick
- Saint Peter's University Hospital
- Surgical Institute (SI)
- University Center for Ambulatory Surgery (UCAS)





# Cris Beiro, MD Sports Medicine & Arthroscopic Surgery

Dr. Cris Beiro is a board certified orthopaedic surgeon. Prior to joining UOA, Dr. Beiro was a former Navy corpsman and co-founder of Garden State Bone and Joint. He is a clinical assistant professor of orthopaedic surgery at UMDNJ New Jersey Medical School.

Dr. Beiro received his medical degree from UMDNJ New Jersey Medical School, where he also completed his internship and residency. He completed his fellowship in sports medicine at Union Memorial Hospital in Baltimore, and acted as assistant team physician to professional and college teams, including the Baltimore Ravens NFL team and the Washington Nationals MLB team.

#### **ACCOMPLISHMENTS**

- Member of the American Academy of Orthopaedic Surgeons
- Member of the American Orthopaedic Society for Sports Medicine
- Member of The Arthroscopy Association of North America
- Named to the Monmouth County's Top Doctors list
- Orthopaedic Administrative Chief Resident, UMDNJ New Jersey Medical School
- Department of Orthopaedics Resident Teaching Award, UMDNJ New Jersey Medical School
- Deans Honor List Cornell University
- Specialized training in knee joint preservation and articular cartilage restoration
- Member of the American Association of Hip and Knee Surgeons
- Member of the International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine

#### **HIGH SCHOOL AFFILIATIONS**

· Sayreville High School

#### **HOSPITAL AFFILIATIONS**

- · Hackensack Meridian Jersey Shore University Medical Center
- · Hackensack Meridian JFK University Medical Center
- · Hackensack Meridian Old Bridge Medical Center
- · Hackensack Meridian Raritan Bay Medical Center
- · Metropolitan Surgical Institute (MSI)
- Robert Wood Johnson University Hospital New Brunswick
- University Center for Ambulatory Surgery (UCAS)



### Andrzej Brzezinski, MD

Joint Replacement Surgery

Dr. Andrzej Brzezinski is an orthopaedic surgeon and joint replacement specialist at University Orthopaedic Associates (UOA). He earned his medical degree and completed an Orthopedic Residency at The Medical University of Warsaw in Poland. After his residency, Dr. Brzezinski became a certified general orthopedist, focusing on joint replacement, sports-related injuries, and trauma cases involving the lower extremities. He then relocated to the United States, where he continued his career in orthopaedics, completing another residency at Rutgers Robert Wood Johnson Medical School in New Brunswick, New Jersey.

Before joining UOA as an orthopaedic surgeon, Dr. Brzezinski further specialized by completing an Orthopaedic Foot and Ankle Fellowship at the New England Baptist Hospital in Boston, Massachusetts, from 2022-2023, followed by a Hip and Knee Joints Arthroplasty Fellowship at Yale New Haven Hospital in New Haven, Connecticut, from 2023-2024. He is fluent in both Polish and English.

#### **CLINICAL INTEREST**

Dr. Brzezinski specializes in hip, knee, and ankle joint replacement surgeries, utilizing conventional techniques, image and computer-assisted intra-operative navigation, and robotic-assisted joint replacements.

- · Hackensack Meridian Old Bridge Medical Center
- · Hackensack Meridian Raritan Bay Medical Center
- Robert Wood Johnson University Hospital New Brunswick
- Robert Wood Johnson University Hospital Somerset
- · Saint Peter's University Hospital
- University Center for Ambulatory Surgery (UCAS)





### Patrick S. Buckley, MD Sports Medicine & Orthopaedic Surgery

Dr. Patrick S. Buckley is a board certified, fellowship trained orthopaedic surgeon. He is subspeciality certified in Sports Medicine by the American Board of Orthopaedic Surgeons. He is a sports medicine specialist with advanced training in the treatment of knee, shoulder and hip injuries. He graduated cum laude from Villanova University. Dr. Buckley obtained his medical degree from Sidney Kimmel Medical College at Thomas Jefferson University in Philadelphia, Pennsylvania. He completed his residency in orthopaedic surgery at the Rothman Institute at Thomas Jefferson University Hospital in Philadelphia, Pennsylvania followed by a fellowship in sports medicine at The Steadman Clinic and the Steadman Philippon Research Institute in Vail, Colorado.

Dr. Buckley is the team physician for Princeton University and Neptune High School. He is also a member of the U.S. Olympic Ski and Snowboard physician pool and travels annually to provide medical care for the U.S. Moguls team.

#### **ACCOMPLISHMENTS**

- Academic appointment as a Clinical Assistant Professor of Orthopaedic Surgery at Rutgers Robert Wood Johnson Medical School
- Member of The American Academy of Orthopaedic Surgery (AAOS)
- Member of The American Orthopaedic Society for Sports Medicine (AOSSM)
- Member of The American Shoulder and Elbow Society (ASES)
- Named to the Monmouth County's Top Doctors list
- Selected as Graduation Speaker by medical school classmates
- · Alpha Omega Alpha Honor Society
- Team physician, Princeton Univeristy, US Ski and Snowboard Olympic teams,
   and Neptune High School

#### **HOSPITAL AFFILIATIONS**

- · CentraState Medical Center
- Hackensack Meridian Jersey Shore University Medical Center
- Robert Wood Johnson University Hospital New Brunswick
- Surgical Institute (SI)
- University Center for Ambulatory Surgery (UCAS)



### Mark S. Butler, MD General Orthopaedics and Foot & Ankle Surgery

Dr. Butler is board certified in orthopaedic surgery. He obtained his medical degree from UMDNJ Rutgers Medical School, after earning his undergraduate degree and master's degrees from Lafayette College and Lehigh University. He completed his residency in orthopaedic surgery at Rutgers Robert Wood Johnson Medical School. Dr. Butler completed a fellowship at the Maryland Institute for Emergency Medical Services Systems specializing in traumatology and foot and ankle surgery.

#### **ACCOMPLISHMENTS**

- Subspecialty trained in traumatology and surgery of the foot and ankle
- Academic appointment as a Clinical Associate Professor of Orthopaedic Surgery at Rutgers Robert Wood Johnson Medical School
- New Jersey Task Force One (NJ-TF1) volunteer
- Published author in peer-reviewed journals
- Regional and national lecturer on orthopaedics
- Elected by his peers for inclusion in Best Doctors in America®
- · Named to the Castle Connelly Top Doctors list
- Named to the New Jersey Monthly Jersey Choice Top Doctors list

- · CARES Surgicenter
- · Robert Wood Johnson University Hospital New Brunswick
- · Saint Peter's University Hospital
- University Center for Ambulatory Surgery (UCAS)





# Gino Chiappetta, MD Spine Surgery

Dr. Chiappetta is board certified in orthopaedic surgery. He obtained his medical degree from UMDNJ Robert Wood Johnson Medical School after earning his undergraduate degree from Rutgers University. He completed his internship and residency at the University of Miami Leonard M. Miller School of Medicine, Jackson Memorial Hospital. Following his residency, he completed a fellowship at The Spine Institute of New York at Beth Israel Medical Center, New York.

#### **ACCOMPLISHMENTS**

- Subspecialty trained in surgery of the spine and orthopedic trauma
- Academic appointment as a Clinical Associate Professor of Orthopaedic Surgery at Rutgers Robert Wood Johnson Medical School
- Inducted into the Alpha Omega Alpha Honor Medical Society
- Advanced training in robotic spine surgery utilizing the Mazor Renaissance Robotic® system
- · Advanced training in cervical and lumbar disc replacement surgery
- Voted Vitals Patients' Choice Award
- · Named to the New Jersey Monthly Jersey Choice Top Doctors list
- · Named to the Select Surgeons Bone & Joint list

#### **HOSPITAL AFFILIATIONS**

- · Hackensack Meridian Jersey Shore University Medical Center
- · Robert Wood Johnson University Hospital New Brunswick
- Robert Wood Johnson University Hospital Somerset
- Saint Peter's University Hospital
- Surgical Institute (SI)
- University Center for Ambulatory Surgery (UCAS)



### Pavli Demian, DO Pain Management & Interventional Physiatrist

Pavli Demian is a board certified interventional physiatrist and pain management physician. He obtained his doctorate of osteopathic medicine from UMDNJ School of Ostepathic Medicine after earning his undergraduate degree from Rutgers, the state University of New Jersey, Rutgers College. Dr. Demian completed his residency in physical medicine and rehabilitation at Rutgers, the state University of New Jersey, New Jersey Medical School. After his residency, he completed a fellowship in pain medicine at UCLA—WLA VA, Los Angeles.

Dr. Demian specializes in non-operative spine and musculoskeletal care. He has extensive experience in diagnosing and treating various acute and chronic musculoskeletal, neurological, and pain disorders. Improving his patients' pain and function to enhance their quality of life is the focus of his practice and what he is passionate about.

In addition to his passion for improving patients' quality of life, he also enjoys playing soccer, being outdoors, and spending time with his family.

#### **ACCOMPLISHMENTS**

- Member, American Academy of Physical Medicine and Rehabilitation
- · Member, American Society of Pain & Neuroscience
- · Member, New Jersey Society of Interventional Pain Physicians
- Diplomate, American Board of Physical Medicine and Rehabilitation
- Diplomate, American Board of Physical Medicine and Rehabilitation, Subspecialty Pain Medicine
- · ACLS, BLS Certified
- Certified National Board of Osteopathic Medical Examiners
- Rutgers-NJMS Golden Apple Teaching Award Nomination (2016, 2017)
- Children's Specialized Hospital Star Award (February 2015)
- Dean's List, Rutgers College, Rutgers University (2004-2008)
- · Member, North American Neuromodulation Society
- Member, North American Spine Society

- Robert Wood Johnson University Hospital Somerset
- Surgery Center at Hamilton
- University Center for Ambulatory Surgery (UCAS)





### **Christopher Doumas, MD**

Hand & Upper Extremity Surgery

Dr. Doumas is board certified in orthopaedic surgery. He obtained his medical degree from UMDNJ New Jersey Medical School after earning his undergraduate degree from the College of William & Mary. He completed his internship and residency at the University of Miami Leonard M. Miller School of Medicine, Jackson Memorial Hospital. Following his residency, he did a fellowship in hand and upper extremity surgery at the Hospital of the University of Pennsylvania.

#### **ACCOMPLISHMENTS**

- Subspecialty certified in surgery of the hand and upper extremity
- Director of Hand Surgery at Jersey Shore University Medical Center
- · Academic appointment as a Clinical Assistant Professor of Orthopaedic Surgery at Rutgers Robert Wood Johnson Medical
- Volunteered as a surgeon in Haiti following 2010 earthquake
- Nurse's Choice Physician of the Year at Jersey Shore University
- Co-author of the orthopaedic textbook, Operative Techniques in Orthopaedic Surgery
- · Inducted into the Alpha Omega Alpha Honor Medical Society
- Fellow of the American Academy of Orthopaedic Surgeons (AAOS)
- Member of the American Society for Surgery of the Hand (ASSH)
- Reviews scientific articles for publication in several prominent orthopedic journals
- · Named to the Castle Connelly Top Doctors list
- · Named to the Select Surgeons Bone & Joint list

#### **CLINICAL INTERESTS**

- · Joint replacements of the shoulder, elbow, wrist and hand
- · Arthroscopy of the shoulder, wrist and hand
- Nerve decompression
- · Nerve transfers
- · Performs Tenex for various tendon disorders including lateral epicondylitis

#### **HOSPITAL AFFILIATIONS**

- · Hackensack Meridian Jersey Shore University Medical Center
- Surgical Institute (SI)
- · University Center for Ambulatory Surgery (UCAS)



### **Justin Fleming, DPM, FACFAS** Foot and Ankle Surgery

Dr. Fleming is a foot and ankle surgeon board certified by the American Board of Foot and Ankle Surgeons (ABFAS). He obtained his medical degree from Temple University and his undergraduate degree from Widener University in Chester, Pennsylvania. He received extensive training in foot and ankle reconstruction for three years in the Emory Healthcare System where he served as the chief resident. He gained additional training in fracture management with the U.S. Army at Fort Benning as well as in Europe.

#### **ACCOMPLISHMENTS**

- · Board certified in reconstructive rearfoot and ankle surgery
- · Board certified in foot surgery
- · Fellow, American Board of Foot and Ankle Surgery
- · Diplomate, American College of Foot and Ankle Surgeons
- · Extensive continuing education in external fixator, ankle arthroscopy and ankle arthroplasty
- Extensive physician training, instructed nearly 50 courses to date
- Given over 100 lectures to date, both nationally and internationally
- · Faculty member, The Podiatry Institute
- · Humanitarian work in Guatemala with Healing the Children medical mission
- Two-time Teaching Physician of the Year Award Aria-Jefferson Health Valedictorian, Temple University School of Medicine
- · Assistant Clinical Professor, Department of Orthopedics, Rutgers -Robert Wood Johnson Medical School
- Foot/Ankle Consultant Rutgers Football
- Extensive experience in ankle replacement, complex foot/ankle fractures and revision surgery including bone loss, avsacular necrosis and non-unions

- · Hackensack Meridian Jersey Shore University Medical Center
- · Robert Wood Johnson University Hospital New Brunswick
- · Robert Wood Johnson University Hospital Somerset
- Saint Peter's University Hospital
- Surgical Institute (SI)
- · University Center for Ambulatory Surgery (UCAS)





### Charles J. Gatt, Jr., MD Sports Medicine & Arthroscopic Surgery

Dr. Gatt is board certified in orthopaedic surgery. He obtained his medical degree from UMDNJ Robert Wood Johnson Medical School after earning his undergraduate degree from Lafayette College. He completed an internship and his residency at Rutgers Robert Wood Johnson Medical School, New Brunswick. Following his residency, he completed a fellowship specializing in orthopaedic sports medicine at the Cleveland Clinic Foundation.

#### **ACCOMPLISHMENTS**

- · Subspecialty certified in orthopaedic sports medicine
- Orthopaedic Consultant and Team Physician at Rutgers University
- Head Orthopaedic Consultant for Rider University Athletics, 1997– 2020
- Chairman & Program Director of Orthopaedic Surgery at Rutgers Robert Wood Johnson Medical School
- Associate Professor of Orthopaedic Surgery at Rutgers Robert Wood Johnson Medical School
- Program Director of the Limb and Salvage Program at Armed Forces Institute of Regenerative Medicine (AFIRM)
- · Published author in peer-reviewed journals
- Regional and national lecturer on orthopaedics
- Named to the New Jersey Monthly Jersey Choice Top Doctors list
- · Patients' Choice Award recipient
- · Elected by his peers for inclusion in Best Doctors in America®
- · Patients' Choice On-Time Physician recognition
- · 2020 Edward J. III Excellence in Medicine Award
- 2021 winner of Special Award for Innovation by the EJI Excellence in Medicine Foundation

#### **HOSPITAL AFFILIATIONS**

- CARES Surgicenter
- · Robert Wood Johnson University Hospital New Brunswick
- · Saint Peter's University Hospital
- University Center for Ambulatory Surgery (UCAS)



### **Tony George, DO, FAAPMR**Pain Management & Interventional Physiatrist

Tony George, DO, FAAPMR is a board-certified interventional pain and musculoskeletal physiatrist.

Dr. George graduated from Loyola University Chicago, where he earned his Bachelor of Science in Biology. He earned his medical degree at the West Virginia School of Osteopathic Medicine. Afterward, he received postgraduate training at St. Luke's Hospital and Health Network in Bethlehem, PA, and Tufts Medical Center in Boston, MA. He completed his fellowship in interventional spine and minimally invasive techniques at the Department of Orthopaedics at UMass Memorial Medical Center in Worcester, MA.

Dr. George has authored books, book chapters and is published in many medical journals in interventional physiatry and pain medicine. He edited "Clinical Guide to Musculoskeletal Medicine" and "Orthopedic Rehabilitation: Principles and Practice". He has given lectures on topics related to neuromodulation, musculoskeletal physiatry and minimally invasive interventions in his specialty. Dr. George is board certified in Pain Medicine and in Physical Medicine and Rehabilitation.

He is passionate about organizing medical mission trips internationally to countries like Honduras, Guatemala, Dominican Republic, Belize, India, Nepal, and Cambodia.

#### **ACCOMPLISHMENTS**

- Assistant Professor of Physical Medicine and Rehabilitation, Hackensack Meridian School of Medicine
- · Parminder S. Phull Humanitarian Award
- · Clingman Memorial Award for Excellence in Community Service
- · TOUCH Community Service Award
- Cancer Committee Member, St. Peter's University Hospital, New Brunswick
- Pain and Palliative Committee Member, St. Peter's University Hospital, New Brunswick
- Clinical Research Committee, American Society of Pain and Neuroscience
- Advocacy and Policy Committee, American Society of Pain and Neuroscience
- Member, American Academy of Physical Medicine and Rehabilitation
- Member, American Society of Pain and Neuroscience
- · Member, International Spine Intervention Society
- · Member, American Society of Interventional Pain Physicians
- Member, North American Spine Society

- · Robert Wood Johnson University Hospital New Brunswick
- Saint Peter's University Hospital





### David A. Harwood, MD

Joint Replacement Surgery

Dr. Harwood is board certified in orthopaedic surgery. He obtained his medical degree from UMDNJ Rutgers Medical School after earning his undergraduate degree from Princeton University. He completed an internship at the University of California at San Francisco (UCSF) and residency at UMDNJ Robert Wood Johnson Medical School. Following his residency, he completed a fellowship specializing in joint replacement and arthritis surgery at the Cleveland Clinic Foundation. He is involved on an ongoing basis with clinical trials for patients with degenerative knee diseases.

#### **ACCOMPLISHMENTS**

- Subspecialty trained in adult reconstruction and joint replacement
- · Academic appointment as a Clinical Associate Professor of Orthopaedic Surgery at Rutgers Robert Wood Johnson Medical
- · Elected by his peers for inclusion in Best Doctors in America®
- · Named to the New Jersey Monthly Jersey Choice Top Doctors list
- Member of the American Academy of Orthopedic Surgeons (AAOS)
- Member of the American Association of Hip and Knee Surgeons
- Published author in peer-reviewed journals
- · Conducted FDA 2014 study to investigate the efficacy and safety of a new total knee replacement construction
- Speaker at regional, national and international scientific meetings
- Appointed as Section Chief of Orthopaedics at Saint Peter's University Hospital

#### **HOSPITAL AFFILIATIONS**

- Robert Wood Johnson University Hospital New Brunswick
- Saint Peter's University Hospital
- · University Center for Ambulatory Surgery (UCAS)



### Stephen Kayiaros, MD Joint Replacement Surgery

Dr. Kayiaros is board certified in orthopaedic surgery. He obtained his medical degree from the UMDNJ Robert Wood Johnson Medical School and his undergraduate degree from Johns Hopkins University. He completed his internship and residency in orthopaedic surgery as well as a fellowship in orthopaedic trauma at Warren Alpert School of Medicine at Brown University, followed by a fellowship in adult reconstruction and joint replacement at the Hospital for Special Surgery in New York.

#### **ACCOMPLISHMENTS**

- Subspecialty trained in Adult Reconstruction and Joint Replacement and Orthopaedic Trauma
- 2015 Volunteer Faculty Award recipient, Robert Wood Johnson Medical School
- Voted NJ Monthly Jersey Choice Top Doctor
- Named to the Select Surgeons Bone & Joint list
- Member of the American Academy of Orthopaedic Surgeons (AAOS)
- Member of the American Association of Hip and Knee Surgeons
- Nearly two dozen professional presentations on orthopaedic surgery
- Clinical Assistant Professor, Department of Orthopaedic Surgery, Rutgers Robert Wood Johnson Medical School
- Senior Clinical Associate and Clinical Instructor, Department of Orthopaedic Surgery, Weill Cornell Medical College, Cornell University; Hospital for Special Surgery and Department of Orthopaedic Surgery; Warren Alpert School of Medicine, Brown University
- Resident of the Year, Department of Orthopaedics, Warren Alpert School of Medicine of Brown University
- Elected into the Alpha Omega Alpha Honor Medical Society
- Excellence in Pathology, Robert Wood Johnson Medical School
- Honors Graduate, Johns Hopkins University
- · Fluent in Greek, working knowledge of French

- Robert Wood Johnson University Hospital Somerset
- University Center for Ambulatory Surgery (UCAS)





# Timothy P. Leddy, MD Hand & Upper Extremity Surgery

Dr. Leddy is board certified in orthopaedic surgery. He obtained his medical degree from Sidney Kimmel Medical College - Thomas Jefferson University after earning his undergraduate degree from Lehigh University. He completed an internship and his residency at UMDNJ Robert Wood Johnson Medical School. Dr. Leddy then completed a fellowship in surgery of the hand and upper extremity at the Mayo Clinic.

#### **ACCOMPLISHMENTS**

- Subspecialty certified in hand and upper extremity surgery
- Academic appointment as a Clinical Associate Professor of Orthopaedic
- Surgery at Rutgers Robert Wood Johnson Medical School
- Health Volunteers Overseas (HVO) Site Director 2005—present
- Reviewer for Journal of the American Academy of Orthopaedic Surgeons
- Published author in peer-reviewed journals
- Regional and national lecturer on orthopaedics
- · Named to the New Jersey Monthly Jersey Choice Top Doctors list
- · Named to the Select Surgeons Bone & Joint list
- Named to the Castle Connelly Top Doctors list

#### **HOSPITAL AFFILIATIONS**

- · Children's Specialized Hospital
- · Hackensack Meridian Jersey Shore University Medical Center
- Robert Wood Johnson University Hospital New Brunswick
- Robert Wood Johnson University Hospital Somerset
- · Saint Peter's University Hospital
- University Center for Ambulatory Surgery (UCAS)



### Michael T. Lu, MD

Shoulder and Elbow Surgery

Dr. Michael Lu is a board certified orthopaedic surgeon. Before joining University Orthopaedic Associates, Dr. Lu co-founded Garden State Bone and Joint in Woodbridge. He earned his medical degree from Washington University School of Medicine in St. Louis, and completed both an internship and residency at UMDNJ New Jersey Medical School. He then completed a fellowship in shoulder and elbow surgery at the University of Pennsylvania.

#### **ACCOMPLISHMENTS**

- Member of the American Academy of Orthopaedic Surgeons
- Member of the Arthroscopy Association of North America
- Member of the Mid-Atlantic Shoulder and Elbow Society
- Alfred F. Behrens Outstanding Resident Award
- Frederick F. Buechel, Sr. Award for Resident Research
- Outstanding Resident Research Award, NJMS Department of Orthopaedics
- · Starr Foundation Scholar
- · Dean's List at Temple University

- · Hackensack Meridian JFK University Medical Center
- · Hackensack Meridian Old Bridge Medical Center
- · Hackensack Meridian Raritan Bay Medical Center
- Metropolitan Surgical Institute (MSI)
- University Center for Ambulatory Surgery (UCAS)





# Matthew McDonnell, MD Spine Surgery

Dr. McDonnell is a board certified orthopaedic spine surgeon specializing in the surgical treatment of spinal conditions and disorders. He obtained his medical degree from UMDNJ New Jersey Medical School after completing his undergraduate degree at The College of New Jersey. He then completed his internship and residency training in orthopaedic surgery at Brown University and Rhode Island Hospital in Providence, Rl. Dr. McDonnell completed a fellowship in orthopaedic trauma at Brown University followed by a fellowship in spine surgery at Rothman Institute at Thomas Jefferson University Hospital in Philadelphia, Pennsylvania.

#### **ACCOMPLISHMENTS**

- Subspecialty trained in surgery of the spine
- · Fellowship trained in spine surgery and orthopaedic trauma surgery
- Academic appointment as a Clinical Associate Professor of Orthopaedic Surgery at Rutgers Robert Wood Johnson Medical School
- Advanced training in robotic spine surgery
- · Advanced training in cervical disc replacement surgery
- · Advanced training in Endoscopic spine surgery
- Served as Executive Chief Resident of the Orthopaedic Residency Program at Warren Alpert Medical School of Brown University, Rhode Island Hospital, 2011-2012
- Awarded the Haffenreffer House Staff Excellence Award at Warren Alpert Medical School of Brown University, Rhode Island Hospital, 2012
- Awarded the Lucas/Palumbo Spine Achievement Award at Warren Alpert Medical School of Brown University, Rhode Island Hospital, 2012
- Inducted into the Alpha Omega Alpha Honor Medical Society
- Selected by his peers as Most Valuable Resident at Brown University 2010
- Served as a member of the Graduate Medical Education Committee at Warren Alpert Medical School of Brown University, Rhode Island Hospital, 2010-2013
- Member of the American Academy of Orthopaedic Surgeons (AAOS);
   North American Spine Society (NASS); Cervical Spine Research
   Society (CSRS); Orthopaedic Trauma Association (OTA)
- Named to the New Jersey Monthly Jersey Choice Top Doctors list
- Published numerous peer-reviewed articles, abstracts and chapters in the fields of spine surgery and orthopaedic trauma

#### **HOSPITAL AFFILIATIONS**

- · Hackensack Meridian Jersey Shore University Medical Center
- Robert Wood Johnson University Hospital New Brunswick
- Robert Wood Johnson University Hospital Somerset
- Saint Peter's University Hospital
- · University Center for Ambulatory Surgery (UCAS)



## James T. Monica, MD Hand & Upper Extremity Surgery

Dr. Monica is board certified in orthopaedic surgery. He obtained his medical degree from Columbia University College of Physicians and Surgeons after completing his undergraduate degree from Johns Hopkins University. He completed his internship at the Brigham and Women's Hospital Department of Surgery and his residency at Harvard Medical School, Harvard University. He then completed fellowships at Massachusetts General Hospital specializing in hand and upper extremity surgery as well as open and arthroscopic shoulder surgery.

#### **ACCOMPLISHMENTS**

- · Subspecialty certified in hand and upper extremity surgery
- Orthopaedic hand and upper extremity consultant for Princeton University Athletics
- Rutgers Robert Wood Johnson Hospital Department of Orthopaedic Surgery Volunteer Faculty Teaching Award, 2022
- Named to the New Jersey Monthly Jersey Choice Top Doctors list
- Academic appointment as a Clinical Associate Professor of Orthopaedic
- Surgery at Rutgers Robert Wood Johnson Medical School
- Chief Resident, Harvard Combined Orthopaedic Residency Program, Massachusetts General Hospital 2009
- Resident Representative, Massachusetts General Hospital Committee on Teaching and Education, 2007-2009
- Inducted into Alpha Omega Alpha Honor Medical Society, 2016
- Published numerous peer-reviewed articles and book chapters, and presented at regional, national and international scientific meetings in the United States, Scotland and Korea

- · CARES Surgicenter
- Penn Medicine Princeton Medical Center
- Robert Wood Johnson University Hospital New Brunswick
- Robert Wood Johnson University Hospital Somerset
- · Saint Peter's University Hospital
- University Center for Ambulatory Surgery (UCAS)





### Robert Pannullo, MD Pain Management & Interventional Physiatrist

Dr. Robert Pannullo, MD is a board certified interventional physiatrist, pain management physician and independent medical examiner. Dr. Pannullo received his medical degree from Wayne State University School of Medicine and graduated with highest honors from Upsala College, where he earned a Bachelor of Science in biochemistry. He received postgraduate training at New York-Presbyterian Weill Cornell Medical Center and completed his fellowship in interventional spine techniques and pain management at OSS Health in York, Pennsylvania, under the direction of Michael B. Furman, MS, MD.

#### **ACCOMPLISHMENTS**

- Named to the New Jersey Monthly Jersey Choice Top Doctors list
- Wayne State University School of Medicine Honors: family medicine, general surgery
- · Recommended for clinical honors in internal medicine
- Member, American Academy of Physical Medicine and Rehabilitation
- · Member, American Academy of Pain Medicine
- · Member, Phi Beta Kappa honors society

#### **HOSPITAL AFFILIATIONS**

- Robert Wood Johnson University Hospital Somerset
- Surgical Institute (SI)
- · University Center for Ambulatory Surgery (UCAS)



### David R. Polonet, MD

#### Traumatology

Dr. Polonet is board certified in orthopaedic surgery by the American Board of Orthopaedic Surgery. He obtained his medical degree from the Renaissance School of Medicine at Stony Brook University after earning his undergraduate degree from Stanford University. He completed his internship and residency at the Renaissance School of Medicine at Stony Brook University, New York. Dr. Polonet then completed a fellowship in traumatology at Harborview Medical Center.

#### **ACCOMPLISHMENTS**

- Subspecialty trained in traumatology
- Director of Orthopedic Trauma at Jersey Shore University Medical Center
- Academic appointment as a clinical associate professor of orthopaedic surgery at Rutgers Robert Wood Johnson Medical School
- Volunteered as a surgeon in Haiti following the 2010 earthquake
- · Associate Editor, Journal of Orthopaedic Trauma
- Fellow of the American Academy of Orthopedic Surgeons (AAOS)
- Fellow of the American College of Surgeons
- MD with Distinction in Research, Renaissance School of Medicine at Stony Brook University, New York
- · Published author in peer-reviewed journals
- Regional and national lecturer on orthopaedics
- · Named to the Select Surgeons Bone & Joint list

#### **HOSPITAL AFFILIATIONS**

- CentraState Medical Center
- · Hackensack Meridian Jersey Shore University Medical Center
- Surgical Institute (SI)



## Sergei Pushilin, MD Traumatology

Dr. Sergei Pushilin is board certified in orthopaedic surgery. He graduated magna cum laude with a bachelor's in psychology from Brooklyn College. He obtained his medical degree from SUNY Downstate College of Medicine and completed his residency in orthopaedic surgery at State University of New York (SUNY) Downstate Medical Center. Dr. Pushilin then completed a trauma fellowship in orthopaedic surgery at University of Pittsburgh Medical Center. He also served as a clinical

instructor of orthopaedic surgery at the University of Pittsburgh School

#### **ACCOMPLISHMENTS**

of Medicine.

- Clinical Assistant Professor of Orthopaedic Surgery at Rutgers Robert Wood Johnson Medical School
- Assistant Director of Orthopaedic Trauma at Jersey Shore University Medical Center
- · The Christopher Pavlides, MD Memorial Award
- The Brooklyn College Foundation Presidential Scholarship
- · The Carolyn R. Freeman Award
- Served as a team physician for the NYC Public School Athletics League (PSAL)
- · Volunteered in the Brooklyn Free Clinic
- · Lecturer and published author in peer-reviewed journals
- Fluent in Russian

- · CentraState Medical Center
- · Hackensack Meridian Jersey Shore University Medical Center
- Robert Wood Johnson University Hospital New Brunswick
- Robert Wood Johnson University Hospital Somerset
- Saint Peter's University Hospital
- Surgical Institute (SI)
- University Center for Ambulatory Surgery (UCAS)





# Carlos A. Sagebien, MD Traumatology

Dr. Sagebien is board certified in orthopaedic surgery. He obtained his medical degree from UMDNJ New Jersey Medical School after earning his undergraduate degree from Hamilton College. He completed his internship and residency at UMDNJ Robert Wood Johnson Medical School. Dr. Sagebien then completed a fellowship in traumatology at R Adams Cowley Shock Trauma Center at the University of Maryland.

#### **ACCOMPLISHMENTS**

- Subspecialty trained in traumatology
- Academic appointment as a Clinical Associate Professor of Orthopaedic Surgery at Rutgers Robert Wood Johnson Medical School
- Director of Orthpaedic Trauma, Robert Wood Johnson University Hospital New Brunswick
- Member Orthopaedic Trauma Association
- · Fellow of the AO Foundation, Davos, Switzerland
- 2015 Volunteer Faculty Award recipient, Robert Wood Johnson Medical School
- Published author in peer-reviewed journals
- Speaker at numerous regional and national scientific meetings
- · Named to the New Jersey Monthly Jersey Choice Top Doctors list
- · Named to the Select Surgeons Bone & Joint list
- Member American Academy of Orthopaedic Surgeons (AAOS)
- Member Eastern Orthopaedic Association (EOA)

#### **HOSPITAL AFFILIATIONS**

- · Hackensack Meridian Jersey Shore University Medical Center
- Robert Wood Johnson University Hospital New Brunswick
- · Robert Wood Johnson University Hospital Somerset
- Saint Peter's University Hospital
- · University Center for Ambulatory Surgery (UCAS)



# **Kenneth G. Swan, Jr., MD**Sports Medicine, Fractures and Shoulder Surgery

Dr. Swan is board certified in orthopaedic surgery. He obtained his medical degree from Cornell University, where he also earned his undergraduate degree with a Bachelor of Science in Nutritional Sciences. He completed his internship and residency at the UMDNJ New Jersey Medical School. He subsequently did a sports medicine and shoulder surgery fellowship at the University of Colorado.

#### **ACCOMPLISHMENTS**

- Subspecialty certified in orthopaedic sports medicine
- Director, Division of Orthopedic Surgery, Hackensack Meridian Raritan Bay Medical Center
- Director, Human Motion Institute, Hackensack Meridian Raritan Bay Medical Center
- Fellow of the American Orthopaedic Society for Sports Medicine (AOSSM)
- Fellow of the American Academy of Orthopaedic Surgeons (AAOS)
- "Gold Doc" Humanism Award, Arnold P. Gold Foundation, 2014
- Named to the New Jersey Monthly Jersey Choice Top Doctors list
- Academic appointment as a Clinical Associate Professor of Orthopaedic Surgery at Rutgers Robert Wood Johnson Medical School
- Volunteer Faculty Award, Department of Orthopaedic Surgery, Rutgers Robert Wood Johnson Medical School, 2011, 2016
- Resident Teaching Award, Department of Orthopaedic Surgery, Rutgers New Jersey Medical School, 2005
- Published author in peer-reviewed journals
- · Regional and national lecturer on orthopaedics
- · Named to the Castle Connelly Top Doctors list

#### **HIGH SCHOOL AFFILIATIONS**

- · Colonia High School
- · John F. Kennedy Memorial High School
- · Perth Amboy High School
- · Sayreville High School
- Union High School
- · Woodbridge High School

- · CentraState Medical Center
- · Hackensack Meridian Jersey Shore University Medical Center
- · Hackensack Meridian Old Bridge Medical Center
- Hackensack Meridian Raritan Bay Medical Center
- Robert Wood Johnson University Hospital New Brunswick
- Saint Peter's University Hospital
- University Center for Ambulatory Surgery (UCAS)





## Ravi Verma, MD, MBA Spine Surgery

Dr. Ravi Verma is a board certified orthopaedic spine surgeon. He was born and raised in Monmouth County, New Jersey. Dr. Verma earned his medical degree from UMDNJ New Jersey Medical School through the highly competitive seven-year medical program with The College of New Jersey. He was one of 12 people selected from a pool of over 400 candidates for this program.

He completed his orthopaedic surgery residency at New York Medical College (NYMC). While at NYMC, a busy Level 1 regional trauma referral center, he was actively involved in treating patients with orthopaedic and spine high-energy trauma injuries.

Dr. Verma completed a spine surgery fellowship at the Hospital for Special Surgery, ranked the top orthopaedic hospital in the country for the past 10 years. While at HSS, Dr. Verma learned expert techniques in treating spine patients with minimally invasive surgery, scoliosis correction surgery, motion-sparing (nonfusion) spine surgery with artificial disc replacement and using non-narcotic pathways for spine surgery patients. Dr. Verma also treated patients at NewYork-Presbyterian Weill Cornell Medical Center and spine oncology patients at Memorial Sloan-Kettering Cancer Center.

Throughout his education and training, Dr. Verma has maintained a strong interest in researching topics that will benefit his patients. At Rutgers, he was awarded the Alpha Omega Alpha (AOA) Honor Society Medical Student Research Award for his work on the role of diabetes in orthopaedic fracture healing. While at NYMC, he studied the effects of hematomas in the spine of polytrauma patients—research for which he won the best clinical paper.

In addition, Dr. Verma did extensive research on spine deformity (scoliosis), minimally invasive spine surgery, motion preservation (artificial disc replacement) and the use of non-narcotic pathways in spine surgery. He was one of 10 fellows selected to present his research at the HSS Research Symposium.

#### **ACCOMPLISHMENTS**

- New York Medical College (NYMC)-Louis Del Guercio Research Day-1st place-Best Clinical Paper
- Alpha Omega Alpha (AOA) Medical Student Research Recognition Award
- NJMS Alumni Association Scholarship

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